

CLAIMS

What is claimed is:

1. An image forming apparatus comprising:
a light source;
a plurality of photosensitive drums;
a polygon mirror deflecting a plurality of light beams emitted from the light source; and
an image focusing system causing the light beams deflected by the polygon mirror to form spots on surfaces of the plurality of photosensitive drums, wherein the image focusing system is disposed between the polygon mirror and the photosensitive drums, and comprises scanning lenses causing the beams deflected by the polygon mirror to form spots on the respective surfaces of the photosensitive drums, and central axes of the scanning lenses are spaced a predetermined distance from optical axes extended from the center of the light source.
2. The image forming apparatus according to claim 1, wherein the optical scanning apparatus satisfies $0.2 \leq C1/A1 \leq 3.5$ and $0.2 \leq B1/A1 \leq 3.5$ where A1 is a distance spaced between the optical axis and the beam point on the polygon mirror, B1 is a distance spaced between the optical axes and the respective central axes of the scanning lenses, and C1 is a distance spaced between the optical axes and the beam points on the photosensitive drums.
3. The image forming apparatus according to claim 1, wherein the plurality of light beams emitted from the light source are obliquely incident on the polygon mirror at a predetermined angle in a sub-scanning direction.
4. The image forming apparatus according to claim 1, wherein the plurality of light beams emitted from the light source are incident on the polygon mirror.
5. The image forming apparatus according to claim 1, further comprising a collimating lens collimating the beams emitted from the light source, and a cylindrical lens converging the beams having passed through the collimating lens in a sub-scanning direction and causing the beams to be incident on the polygon mirror.

6. The image forming apparatus according to claim 5, wherein the plurality of beams emitted from the light source are incident on the polygon mirror through the collimating lens and the cylindrical lens.

7. The image forming apparatus according to claim 1, further comprising reflecting mirrors installed between the polygon mirror and the scanning lenses to change distances between the plurality of beams deflected by the polygon mirror.

8. The image forming apparatus according to claim 1, wherein the scanning lens is an asymmetrical aspherical plastic lens.

9. An optical scanning system comprising:
a rotatable light deflector;
a light source to emit a plurality of beams of light that scan a plurality of photosensitive medium surfaces to produce images, wherein the plurality of beams of light are incident onto the rotatable light deflector;
a first plurality of mirrors arranged with a second plurality of mirrors to reflect the plurality of beams of light deflected from the rotatable light deflector onto a plurality of optical lenses that guide the plurality of beams of light onto the plurality of photosensitive medium surfaces respectively, wherein a center of the optical lenses is offset from a plurality of axes corresponding to the first and second plurality of mirrors.

10. The system according to claim 9, wherein the plurality of optical lenses are asymmetrical aspherical plastic lenses.

11. The system according to claim 10, wherein equations $0.2 \leq C1/A1 \leq 3.5$ and $0.2 \leq B1/A1 \leq 3.5$ are satisfied, where A1 is a distance measured between a main axis extending from a center of the light source, and a point where the plurality of beams of light are deflected by the rotatable light deflector, B1 is a distance measured between the respective plurality of axes and the center of the plurality of optical lenses, and C1 is a distance measured between the respective plurality of axes and the respective point where the plurality of beams of light are incident upon the plurality of photosensitive medium surfaces.

12 . An optical scanning system comprising:
a light source that emits a beam of light;
a light deflector that rotates about a rotational axis and deflects the beam of light at a predetermined angle along a main axis orthogonal to the rotational axis;
a reflector adjustably defining an optical axis; and
an optical lens having a center axis offset a predetermined distance from the optical axis, wherein the reflector receives the beam of light from the light deflector and reflects the beam of light onto the optical lens, and the beam of light is transmitted through the optical lens and is emitted onto a photosensitive surface.

13 . The system of claim 12, wherein the reflector comprises:
a first mirror; and
a second mirror, wherein the first mirror is disposed to receive the beam of light from the light deflector and reflect the beam of light to the second mirror, disposed to receive the beam of light from the first mirror and reflect the beam of light onto the optical lens.

14 . The system of claim 12, further comprising
a collimating lens; and
a cylindrical lens, wherein the collimating lens and the cylindrical lens guide the beam of light onto the light deflector at a predetermined angle of incidence in a sub-scanning direction.

15 . The system of claim 14, wherein the system comprises one collimating lens, one cylindrical lens and one light deflector.

16 . The system of claim 12, wherein equations $0.2 \leq C1/A1 \leq 3.5$ and $0.2 \leq B1/A1 \leq 3.5$ are satisfied, where A1 is a distance measured between the main axis and a point where the beam of light is deflected by the light deflector, B1 is a distance measured between the optical axis and the center axis, and C1 is a distance measured between the optical axis and the point where the beam of light is emitted onto the photosensitive surface.